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Low Charge Heavy Ion Production with Sub-nanosecond Laser

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We have investigated laser ablation plasma of various species using a nanosecond and a sub-nanosecond laser for both high and low charge state ion production. We found that with sub-nanosecond laser, the generated plasma has long tail which is low charge state ions determined by an electrostatic ion analyzer even when the laser irradiation condition for highly charged ion production. This can be caused by insufficient laser absorption in plasma plume. This property might be suitable for low charge state ion production. We used a nanosecond laser and a sub-nanosecond laser for low charge state ion production. The results of comparison will be shown in this paper.